

CLAIMS

1. A method for producing a foam comprising:

- 5 (a) combining at least one epoxy component with at least one acid source component and at least one encapsulated blowing agent under conditions sufficient to provide an exothermic reaction; and
- (b) utilizing heat from the exothermic reaction so as to expand the combined components to form a foam.

10 2. The method according to Claim 1 further comprising (c) recovery of the foam.

3. The method according to Claim 1 wherein said at least one acid source is substantially water free.

15 4. The method according to Claim 1 wherein the epoxy component is present in a first precursor composition and the acid source is present in a second precursor composition.

5. The method according to Claim 4 wherein the first precursor composition further comprises a blowing agent comprising at least one member selected from the group consisting of butane, propane, isopentane and fluorocarbons.

20 6. The method according to Claim 4 wherein the second precursor composition further comprises a carrier material.

25 7. The method according to Claim 1 wherein the epoxy compound and the acid source are present in a single foam precursor composition.

8. The method according to Claim 7 wherein the acid source comprises at least one photoinitiator.

9. The method according to Claim 1 wherein step (a) occurs at least in part in a containment device.

10. The method according to Claim 9 wherein the containment device comprises polyethylene, polyester, vinyl, ethylene vinyl acetate, nylon, ethylene vinyl acetate, styrene-isoprene-styrene, styrene-butadiene-styrene or other blocked copolymers, polybutadiene, polyamide, modified EVA's, modified polyethylene, modified polybutadiene, GMA, SBR or mixtures thereof.

11. The method according to Claim 1 wherein the acid source comprises phosphoric acid.

12. A foam composite comprising a foam according to Claim 1 which is at least partially in contact with at least one member selected from the group consisting of polyethylene, polyester, vinyl, ethylene vinyl acetate, nylon, ethylene vinyl acetate, styrene-isoprene-styrene block copolymers, styrene-butadiene-styrene block copolymers, polybutadiene, polyamide, modified EVA's, modified polyethylene, modified polybutadiene, GMA, SBR or mixtures thereof.

13. The foam composite of Claim 12 further comprising at least one of polyethylene or styrene powders.

14. A foam precursor comprising:

(a) an A-side foam precursor composition comprising an epoxy compound, and an encapsulated blowing agent, and;

(b) a B-side foam precursor composition comprising an acid source.

15. The foam precursor according to Claim 14 wherein (a) further includes a modifying material.

16. The foam precursor according to Claim 14 wherein (b) further comprises a carrier material.

6A4 17. The foam precursor of Claim 14 wherein said acid source is substantially free of water.

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18. The foam precursor of Claim 14 wherein the encapsulated blowing agent comprises a thermoplastic shell that contains a butane blowing agent.

19. The foam precursor of Claim 14 wherein at least one of the A-side precursor and the
10 B-side precursor further comprises castor oil, at least one benzyl phthalate and at least one member selected from the group consisting of Bis A epoxy and Bis F epoxy.

6A5 20. The foam precursor of Claim 14 wherein said epoxy compound is a bis-A or bis-F epoxy compound; the blowing agent is a butane blowing agent and the A-side precursor
15 further comprises at least one member selected from the group consisting of polypropylene, polyethylene and polyvinyl alcohol.

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